

Deposits of the Upper Triassic System on Franz-Joseph Land SOV-26-58-3-13/51

typical of the Upper Triassic period and similar to the Upper Triassic forms of the Alps, the northeast of the USSR and Spitzbergen Island. Thus L.P. Pirozhnikov discovered the first remains of the Carnian stage of the Upper Triassic period on Franz-Joseph Land.

ASSOCIATION: Nauchno-issledovatel'skiy institut geologii Arktiki-Leningrad (Scientific Research Institute of the Geology of the Arctic-Leningrad)

1. Geology--Franz-Joseph Land
2. Geological time--Determination

Card 2/2

POPOV, Yu.N.

Upper Triassic ammonites and pelecypods of the Franz Josef Land.  
Sbor.st.po paleont.i biostrat. no.12:16-22 '58.

(Wilczek Land--Mollusks, Fossil) (MIRA 13:4)

AUTHOR: Popov, Yu.N.

SOV/11-58-12-10/15

TITLE: The Finding of Otoceras in the Lower Triassic Layers of the Eastern Part of the Upper Yana (Nakhodka Otoceras v nizhnem triase Vostochnogo Verkhoyan'ya)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geologicheskaya, 1958 Nr 12, pp 105-109 (USSR)

ABSTRACT: The author describes the finding, by S.V. Demokhotov and V.I. Konevtsov, of ammonites belonging to the species Otoceras Griesbach in the Lower Triassic layers of the eastern part of the Upper Yana region. Until now, this species was found only in the Himalayas and Eastern Greenland. This finding links the Himalayan and Greenlandian zones of the expansion of the Otoceras Griesbach together, showing the possible way of their migration from the basin of the Pacific Ocean through the Upper Yana geosynclinal sea in the boreal zoogeographic zone. A detailed description of Otoceras Griesbach is given.

Card 1/2

SOV/11-58-12-10/15

The Finding of Otoceras in the Lower Triassic Layers of the Eastern Part of the Upper Yana

There are 4 photos, 1 diagram and 10 non-Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy geologicheskii institut Ministerstva geologii i okhrany nedr SSSR, Leningrad.  
(The Scientific Research Geological Institute of the Ministry of Geology and Conservation of Mineral Resources of the USSR, Leningrad)

SUBMITTED: March 20, 1957

Card 2/2

POPOV, Yu.N.

Interpretation of telluric current observations. Razved i prom.  
geofiz. 24:17-22 '58. (MIRA 11:12)  
(Terrestrial electricity) (Prospecting--Geophysical methods)

SOV/169-59-5-4560

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 5, p 42 (USSR)

AUTHOR: Popov, Yu.N.

TITLE: The Nomogram for the Control of Angles When Plotting the Vector  
Diagrams in the Method of Telluric Currents ✓

PERIODICAL: Razved. i promysl. geofiz., Nr 24, 1958, pp 22 - 23 ✓

ABSTRACT: A nomogram with two logarithmic scales of the modulus 6.25 is  
proposed for simplifying a computer's work when calculating the  
values of  $\arctg (Mtg \psi)$ .

Card 1/1

POPOV, Yu.N.

Paleontological characteristics of Triassic marine deposits in  
the Lena-Olenek area. Trudy NIIGA 67:48-72 '58. (MIRA 12:10)  
(Lena Valley--Paleontology) (Olenek Valley--Paleontology)

POPOV, Yu.N.

New Triassic Cephalopoda. Mat.k "Osn.paleont." no.3:49-51 '59.

(MIRA 15:7)

(Kolyma Valley--Cephalopoda, Fossil)

(Ingirka Valley--Cephalopoda, Fossil)



POPOV, Yu.N.

Biology and systematic significance of septa and lobar sutures  
in ammonites. Paleont.zhur. no.4:41-46 '59.  
(MIRA 13:6)

1. Nauchno-issledovatel'skiy institut geologii Arktiki.  
(Ammonoidea)

POPOV, Yu.N.

Effect of the electric inhomogeneity of surface deposits on  
the results obtained by the telluric current method. Razved.  
i prom.geofiz. no.31:30-38 '58. (MIRA 13:4)  
(Electric prospecting)

POPOV, Yu.N.

Regional investigations by the telluric current method in the  
northwestern part of Western Siberia. Razved.i prom.geofiz.  
no.31:38-45 '59. (MIRA 13:4)  
(Siberia, Western--Electric prospecting)

POPOV, Yu.N.

Upper Carboniferous ammonoidea from the Orulgan Range.  
Trudy NIIGA 11182-92 '60. (MIRA 14:7)  
(Orulgan Range--Ammonoidea)

GERKE, Aleksey Aleksandrovich; POPOV, Yu.N., doktor geologomineralog.nauk, nauchnyy red.; DESHALYT, M.G., vedushchiy red.; GENNAD'YEVA, I.M., tekhn.red.

[Foraminifera of Permian, Triassic, and Lias sediments of oil-bearing provinces in the northern part of central Siberia]  
Foraminifery Permskikh, triasovykh i leiasovykh otlozhenii nefte-  
nosnykh raionov severa Tsentral'noi Sibiri. Leningrad, Gos.  
nauchno-tekhn. izd-vo nefte- i gorno-toplivnoi lit-ry, Leningr.  
otd-nie, 1961. 268 p. 122 plates. (Leningrad. Nauchno-  
issledovatel'skii institut geologii Arktiki. Trudy, vol. 120).

(MIRA 15:8)

(Siberia--Foraminifera, Fossil)

POPOV, Yu.N.; KIPARISOVA, I.D., starshiy nauchnyy sotrudnik, kand.geol.-  
mineral.nauk, red.; ABEVICH, P.L., red.izd-va; IVANOVA, A.G.,  
tekhn.red.

[Triassic Ammonoidea of the northeastern U.S.S.R.; paleontological  
basis of the stratigraphy of Triassic sediments in the northeastern  
U.S.S.R.] Triasovye ammonoidei Severo-Vostoka SSSR; paleontologi-  
cheskoe obosnovanie stratigrafii triasovykh otlozhenii Severo-  
Vostoka SSSR. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geologii  
i okhrane neдр, 1961. 178 p. (Leningrad. Nauchno-issledovatel'skii  
institut geologii Arktiki. Trudy, vol. 79). (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskii institut  
(for Kiparisova).

(Soviet Far East--Geology, Stratigraphic) (Ammonoidea)

POPOV, Yu.N.

Horic sediments of the northeastern U.S.S.R. and the problem of  
Rhaetian stage. Trudy NII GA 123:69-77 '61. (MIRA 14:10)  
(Geology, Stratigraphic)

POPOV, Yu.N.

Early Triassic ammonoids in the Northern Caucasus. Paleont. zhur.  
no.3:40-46 '62. (MIRA 15:9)

1. Nauchno-issledovatel'skiy institut geologii Arktiki.  
(Caucasus, Northern--Ammonoidea)



POPOV, Yu.N.

Practice of recording the mean periodic variations of a field of  
telluric currents in the Sea of Azov. Razved.i prom.geofiz.  
no.43:80-87 '62. (MIRA 15:8)  
(Azov, Sea of--Earth currents)

POPOV, Yu.N.

New species of ammonoids from the Olenek stage of the Verkhoyansk  
Range and Lena-Olenek interfluve. Trudy NIIGA 127:176-196 '62.  
(MIRA 15:12)  
(Verkhoyansk Range—Ammonoidea) (Lena Valley—Ammonoidea)

TUMANSKAYA, Ol'ga Grigor'yevna; POPOV, Yu.N., doktor geol.-miner.  
nauk, otv. red.; TURLYGINA, Ye.S., red.izd-va;  
YEGOROVA, N.F., tekhn. red.; SIMKINA, G.S., tekhn. red.

[Permian ammonoids in the central Pamirs and their  
stratigraphic significance] Permskie ammonoi Tsentral'-  
nogo Pamira i ikh stratigraficheskoe znachenie. Moskva,  
Izd-vo AN SSSR, 1963. 118 p. (MIRA 17:1)  
(Pamirs—Ammonoidea)

POPOV, Yu.K.

Some results of electric prospecting on the Sea of Azov. Kazred.  
i prom. geofiz. no.48:66-72 '68 (MIRA 18:1)

POPOV, Yu.N.

Discovery of lower Triassic sediments in the Chukchi folded zone.  
Sov. geol. 3 no.2:140-141 F '60. (MIRA 13:11)

1. Nauchno-issledovatel'skiy institut geologii Arktiki.  
(Chukchi National Area--Geology, Stratigraphic)

POPOV, Yu.N.

Correlation of Triassic sediments in the Arctic and subarctic  
regions. Trudy NIIGA 114:3-21 '60. (MIRA 15:11)  
(Arctic regions--Geology, Stratigraphic)

POPOV, Yu. N.

Problem of the Rhaetian stage in northeastern Asia. Sov. geol. 4  
no.3:79-87 Mr '61. (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut geologii Arktiki.  
(Soviet Far East—Geology, Stratigraphic)

POPOV, Yu.N.

Arctotiolites Popov, nom.nov., a new generic name. Paleont.  
zhur. no.2:137 '63. (MIRA 16:8)

1. Nauchno-issledovatel'skiy institut geologii Arktiki.  
(Ammonoidea--Nomenclature)



POPOV, Yu.N.

New genus Daubichites of the family Paragastrioceratidae.

Paleont. zhur. no.2:148-150 '63.

(MIRA 16:8)

1. Nauchno-issledovatel'skiy institut geologii Arktiki.  
(Soviet Far East--Ammonoidea)

POPOV, Yr.N.; SOLOMINA, R.V.; SOSIPATKOVA, G.P.

Some data on Carboniferous sediments in the lower Lena Valley.  
Dokl. zap. NIIGA. Ser. "Paleont. i biostr." no.6:5-11 '64.  
(MIRA 18:12)

POPOV, Yu.N.

Carnian belemnite of the Kharaulakh Range. Uch. zap. NIIM. Ser.  
"Paleont. i biost." no.6:72-74 '64. (MIRA 28:12)

CHAPLINSKIY, Ivan Andreyevich; POPOV, Yu.N., kand. tekhn. nauk, glavnyy red.;  
MIKHAYLOVA, N.F., inzh., red.; GORFINCHENKO, I.S., kand. tekhn. nauk,  
red.

[Criteria of ultimate resistance and ultimate plasticity of metals.]  
Kriterii predel'nogo soprotivleniia i predel'noi plastichnosti metallov.  
Novosibirsk, 1962. 20 p. (Novosibirsk. Elektrotekhnicheskii institut  
sviazi. Uchenye zapiski, no.2). (MIRA 17:10)

POPOV, Yu.N., inzh.

New method of calculating air hammers according to the similitude theory. Nauch.dokl.vys.shkoly; gor.delo. no.4:189-196  
' 58. (MIRA 12:1)

1. Predstavleno kafedroy prikladnoy mekhaniki i grafiki Leningradskogo gornogo instituta imeni G.V. Plekhanova.  
(Pneumatic tools) (Dimensional analysis)

ZINEVICH, V.D., inzh.; KONDRAT'YEV, N.A., inzh.; POPOV, Yu.N., inzh.

*Dynamics of a rock loading machine with vibrator bucket.*

Nauch.dokl.vys.shkoly; gor.delo. no.4:207-211 '58.

(MIRA 12:1)

1. Predstavleno kafedroy prikladnoy mekhaniki Leningradskogo  
gornogo instituta imeni G.V. Plekhanova.

(Mining machinery) (Material handling)

POPOV, Yu.N., assistant

Approximate estimate of the effect of a bore hammer impact. Izv.vys.  
ucheb.zav.; gor.zhur. no.6:88-91 ' 58. (MIRA 12:1)

1. Leningradskiy gornyy institut.  
(Boring machinery)

TYAKHT, A.A., inzh.; POPOV, Yu.N., inzh.

New suspended self-lubricating device for bore-hammers.

Izv. vys. ucheb. zav.; gor. zhur. no.8:98-102. '58.

(MIRA 12:5)

1. Leningradskiy gornyy institut.

(Boring machinery--lubrication)



POPOV, Yu.N., inzh.; TYAKHT, A.A., inzh.

~~New~~ method of calculating the torque in bore hammers. Izv.vys.  
ucheb.zav.; gor.zhur. no.9:97-100 '58. (MIRA 12:6)

1. Leningradskiy gornyy institut.  
(Boring machinery) (Torque)

POPOV, Yu. N., Cand Tech Sci (diss) -- "The use of the theory of similarity for investigating the working processes of pneumatic hammers". Tomsk, 1959. 13 pp (Min Higher and Inter Spec Educ RSFSR, Tomsk Order of Labor Red Banner Polytech Inst im S. M. Kirov), 150 copies (KL, No 10, 1960, 132)

POPOV, Yu.N., inzh.

Approximate solution for a differential equation on the flow of  
ideal gas in reciprocating engines. Nauch. dokl. vys. shkoly; gor.  
delo no.1:199-201 '59. (MIRA 12:5)

1. Predstavlena kafedroy prikladnoy mekhaniki i grafiki Lenin-  
gradskogo gornogo instituta im. G.V. Plekhanova.  
(Gas flow) (Gas and oil engines)

POPOV, Yu. N., inzh.

Nomogram for designing drilling hammers. Izv. vys. ucheb. zav.;  
gor. zhur. no.9:90-91 '59. (MIRA 14:6)

1. Novosibirskiy inzhenerno-stroitel'nyy institut imeni V. V.  
Kuybysheva. Rekomendovana kafedroy stroitel'nykh mashin.  
(Rock drills)  
(Nomography (Mathematics))

POPOV, Yu.N., inzh.

Calculation of the intensity of counterpressure and the exhaust  
system in pneumatic hammers. Izv.vys.ucheb.zav.; gor.zhur. no.4;  
92-96 '60. (MIRA 14:4)

1. Novosibirskiy stroitel'nyy institut. Rekomendovana kafedroy  
stroitel'nykh mashin.

(Pneumatic machinery)

POPOV, Yu. N., inzh.

Use of the similitudes theory to study striker impact against  
the top of the bit of a pneumatic hammer. Izv. vys.ucheb. zav.;  
gor. zhur. no.5:74-77 1960. (MIRA 14:3)

1. Novosibirskiy stroitel'nyy institut.  
(Pneumatic tools) (Dimensional analysis)

POPOV, Yu.N., kand. tekhn. nauk

Synthetic method of the theory of similitude. Izv. vys.  
ucheb. zav.; gor. zhur. no.6:89-99 '61. (MIRA 16:7)

1. Novosibirskiy inzhenerno-stroitel'nyy institut imeni  
Kuzbysheva. Rekomendovana kafedroy stroitel'nykh mashin.  
(Boring machinery)

12 1977. Papov, Ya. N. The problem of the impact of a ship on an ice floe (in Russian). Trudi Leningr. Korablistr. in-st no. 13, 42-52, 1975, Ref. Zh. Mekh. no. 11, 1956, Rev. 7595

The equations of the impact (collision) between two bodies are given in their known form as follows

$$M_i \Delta v_i = s_i, I_i \Delta \omega_i = r_i \times s_i \quad (i=1,2) \quad [1]$$

In which  $M_i$  = mass of the body;  $I_i$  moment of inertia,  $\Delta v_i$ ,  $\Delta \omega_i$  increment of velocity of the center of gravity and the angular velocity;  $s_i$  impact momentum. The system [1] is associated with the equation

$$v_{1n} - v_{2n} = -\epsilon(v_{01n} - v_{02n}) \quad [2]$$

in which  $\epsilon$  = coefficient of restitution,  $v_{01n}$ ,  $v_{02n}$ ,  $v_{1n}$ ,  $v_{2n}$  are normal components of the velocities of the impact points, before and after the collision. On the basis of Eqs. [1] and [2], different cases of the collision of a ship and an idealized ice floe in the form of a thin circular disk are studied. A number of calculation formulas are set up, and the nondimensional value of the impact momentum  $S_s = S/M_s(1 + \epsilon v_s)$  calculated in relation to  $M_s/M_f$ , where  $M_s$  = mass of ship,  $M_f$  mass of floe, for varying relationships between the structural parameters of the ship and different collision cases

N. N. Moiseev  
Courtesy Referativnyi Zhurnal, USSR  
Translation, courtesy Ministry of Supply, England



SOV/124-58-8-8660

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 46 (USSR)

AUTHOR: Popov, Yu.N.

TITLE: On the Hydrodynamic Moment of Bodies in Motion Beneath the Free Surface of an Ideal Liquid (O gidrodinamicheskoy momente tel, dvizhushchikhsya pod svobodnoy poverkhnost'yu ideal'noy zhidkosti)

PERIODICAL: Tr. Leningr. korablestroit. in-ta, 1956, Nr 18, pp 111-123

ABSTRACT: A determination is made of the moment of hydrodynamic forces acting on a body of arbitrary shape in forward motion at a considerable depth beneath the free surface of a liquid. The method used is that of N.Ye. Kochin (Sobr. soch., Izd-vo AN SSSR, 1949), which he evolved to calculate the hydrodynamic forces acting on a submerged body. The moment is determined from the velocity potential, which Kochin has expressed in terms of a special function  $H(k, \alpha)$ . Consequently, the heeling, trimming, and yawing moments are found in terms of the function  $H(k, \alpha)$ , which can be computed when the velocity distribution or the density of distributed sources on the surface of the body is known. Said density can be

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SOV/124-58-8-8660

On the Hydrodynamic Moment of Bodies in Motion (cont.)

determined from the boundary conditions of the flow past the body. The results obtained are applied to a case of the motion of a slender surface vessel, but the applicability of the Kochin method to such a vessel is not substantiated. Next, simplified formulae are evolved for the lift and the trimming moment; with the aid of these formulae graphs are plotted for different slenderness parameters of the vessel. The results of the calculations agree well with the data obtained from the experiments which the author conducted. The author considers that the results of his work should be of practical use in the study of such matters as the influence exerted by the mean draft and the trim of a slender vessel on its wave resistance, its lateral stability in forward motion, etc.

V.S. Voytsenya

Card 2/2

KUDREVATYY, Georgiy Mikhaylovich.; POPOV, Yu. N., red.; MELEYEV, A.S., red.izd-va;  
LAVRENOVA, N.B., tekhn. red.

[Screw propeller data for marine engineers] Sudovomu mekhaniku-o  
grebnykh vintakh. Moskva, Izd-vo "Morskoi transport," 1958. 153 p.  
(MIRA 11:10)

(Propellers)

POZNYAK, I.I.; POPOV, Yu.N.; SUKHORUKOV, A.Ye.

Research on the building of ice-breaking vessels. Probl.  
Arkt. i Antarkt. no. 4:130-138 '60. (MIRA 13:12)  
(Ice-breaking vessels)

POPOV, Yu. N., kand.tekhn.nauk; RYVLIN, A. Ya., inzh.

Propulsive unit icebreaker-tug. Sudostroenie 27 no.6:18-19  
Je '61. (MIRA 14:6)

(Ice-breaking vessels)  
(Tugboats)

GRAMBERG, I.I.; SPIRO, N.S.; POPOV, Yu.N., red.; PETROVA, Ye.M., red.

[Paleohydrogeochemistry of the northern part of Central Siberia in the Late Paleozoic and Mesozoic.] Paleogidrokhiimiia severa Srednei Sibiri v pozdnem paleozoe i mezozoe. Moskva, Nedra, 1965. 119 p. (Leningrad. Nauchno-issledovatel'skii institut geologii Arktiki. Trudy, vol. 142).

(MIRA 18:8)

POPOV, M. N.

Lower Carboniferous goniatites in the southern Verkhoyansk  
Range. Uch. zap. NIIGA no.5:78-83 '64. (MIRA 18:8)

POPOV, Yu.N., gornyy inzh.

Lowering the timbering materials into shafts through  
boreholes. Gor. zhur. no.10:78-79 0 '65.

(MIRA 18:11)

1. Taseyevskiy rudnik kombinata Baleyzoloto.



44865

5.3210

S/081/62/000/024/029/073  
B193/B186

AUTHORS: Belousova, Ye. A., Popov, Yu. N.

TITLE: An attempt to raise the sensitivity and stability of the spectral microdetermination of certain elements

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1962, 222, abstract 24D40 (In collection: Vopr. geokhronol. i geokhimii dokembriya i paleozoya Yuzhn. Urala i vost. chasti Russk. platformy, Ufa, 1961, 155 - 162)

TEXT: Improved sensitivity for qualitative determination of micro-impurities is obtained as compared with published data, also quantitative determinations having good reproducibility at small (0.0005%) concentrations where the factors affecting the stability of the results of analysis have their greatest influence. These achievements are due in the main to: 1) an increase in weight of the sample (due to the greater size of the cavity bored in the electrode, with a volume  $\sim 120 \text{ mm}^3$ ; 2) use of a stable source of excitation (ДГ-2 (DG-2) generator) and choice of optimal combustion conditions for the sample; 3) mixing of the sample with powdered graphite.  
Card 1/2

An attempt to raise the ...

S/081/62/000/024/029/073  
B193/B186

The last increases the sublimation time of volatile impurities and balances the difference in specific weights of different samples, thus enabling the electrode volume to be padded out and the sample pretreatment time to be reduced to about one-third. [Abstracter's note: Complete translation.]

f

Card 2/2

POPOV, Yuriy Nikolayevich; VARSHAVSKIY, A.S., red.; IGNAT'YEV, V.A.,  
tekhn. red.

[The working class of Africa in the struggle for unity] Rabochii  
klass Afriki v bor'be za edinstvo. Moskva, Profizdat, 1962.  
69 p. (MIRA 15:9)  
(Africa—Labor and laboring classes)

82886

24.6810

S/120/60/000/02/017/052

AUTHORS: Volkov, A.N., Klabukov, A.M. <sup>E192/E382</sup> and Popov, Yu.O.

TITLE: Shutting-off the Photomultipliers by Means of Microsecond Pulses <sub>21</sub>

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, No. 2, pp 68 - 71 (USSR)

ABSTRACT: The experiments with the Soviet photomultipliers, types FEU-19M and FEU-29,<sup>2</sup> showed that under static conditions they can be completely cut off by applying a voltage of +50 V with respect to the control diaphragm. However, under pulsed conditions the photomultipliers cannot be fully re-opened for a duration of about 15  $\mu$ s. This is due to the poor conductivity of the photo cathode. Consequently, a method of shutting-off the multipliers by applying suitable voltages to their dynodes was investigated. The shutting-off characteristics of various dynodes were first measured under static conditions. For this purpose a photomultiplier with its crystal was illuminated by a  $\gamma$ -source ( $\text{Co}^{60}$ ) and the counting rate of the pulses produced by the  $\gamma$ -rays was observed at a constant amplifier

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E192/E382

Shutting-off the Photomultipliers by Means of Microsecond Pulses

threshold. The voltage of the control dynode was varied by a potentiometer divider network in such a way that if the gap above the control dynode received a voltage increase of  $U$ , the voltage of the lower gap was reduced by  $U$ ; this simulated the application of a pulse to the dynode. It was found that the best results were obtained if the shutting-off is done simultaneously at the second and sixth dynodes of the system. The shutting-off process under pulsed conditions was investigated by means of a 50-channel time analyser having a channel width of  $0.476 \mu s$ . The diagram of the generator producing the shutting-off pulses is shown in Figure 3; this also illustrates the voltage divider for the photomultiplier. Figure 4a gives the results of the shutting-off effect of a pulse having an amplitude of 35 V. From this it is seen that FEU-19M and FEU-29 photomultipliers can be controlled by means of comparatively short pulses in such a way that the after-effects are eliminated in less than  $1 \mu s$ . A similar shutting-off system was employed by other authors (Ref 5).

Card2/3 As regards the Soviet photomultiplier FEU-S it was found

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E192/E382

Shutting-off the Photomultipliers by Means of Microsecond Pulses

that they could not be cut off by means of the dynodes. However, this could be achieved simply by applying a voltage of -3 V to the focusing rings. Again a fast operation was possible. The photomultiplier FEU-12 could be shut off by means of the grid, cathode or one of the dynodes. It appeared, however, that the after-effects could not be rapidly eliminated. The authors are indebted to F.L. Shapiro and I.V. Shtranikh for their interest in this work and for valuable advice and also to A.I. Okorokov and Ye.D. Bulatov for testing the multipliers. There are 4 figures and 4 references, 1 of which is English, 4 Soviet; one of the Soviet references is translated from English.

ASSOCIATION: Fizicheskiy institut AN SSSR (Institute of Physics of the Ac.Sc., USSR)

SUBMITTED: February 9, 1959

Card 3/3

POPOV, Yu.P.  
POPOV, Yu.P.

Case of leukemoid reaction with hyperchromic anemia in cancer  
of the lungs with metastases to the bone marrow. Vrach.delo  
supplement '57:18-19 (MIRA 11:3)

1. Kafedra propedevtiki vnutrennikh bolezney (zav.-prof. A.I.  
Brening) Kazanskogo meditsinskogo instituta.  
(CANCER) (BLOOD CELLS)

POPOV, Yu.P.

POPOV, Yu.P.

~~Maturation of reticulocytes~~ [with summary in English, p.64]. Probl.  
gemat. i perel.krovi 2 no.5:32-36 S-O '57. (MIRA 11:1)

1. Iz kafedry gosptal'noy terapii (zav. - zasluzhennyy deyatel'  
nauki prof. A.G.Teregulov) i kafedry propedevtiki vnutrennikh  
bolezney (zav. - prof. A.I.Brening) Kazanskogo meditsinskogo instituta.  
(ERYTHROCYTES  
reticulocytes, maturation)



POPOV, Yu. P.

Rate of reticulocyte maturation under normal and under various physiological and pathological conditions; survey of the literature. Probl.gemat. i perel.krovi 4 no.4:45-49 Ap '59.

(MIRA 12:6)

1. Iz kafedry gosptal'noy terapii (zav. - zasluzhennyy deyatel' nauki prof. A.G.Teregulov) i kafedry propedevtiki vnutrennikh bolezney (zav. - prof.A.I.Brening) Kazanskogo meditsinskogo instituta.

(ERYTHROCYTES,

reticulocyte maturation in normal, exper. & pathol. cond., review (Rus))

POPOV, Yu. P.

Cand Med Sci - (diss) "Problem of the rate of maturation of reticulocytes and products of erythrocytes of marrow." Saratov, 1961. 12 pp; (Ministry of Public Health RSFSR, Saratov State Medical Inst); 200 copies; price not given; (KL, 5-61 sup, 205)

POPOV, Yu. P.

Unique hematological picture in a case of malignant neoplasm.  
Vrach. delo no.7:135 JI '62. (MIRA 15:7)

1. Kafedra gospi'tal'noy terapii (zav. - prof. I. B. Shulutko)  
Kalininskogo meditsinskogo instituta.

(CANCER) (BLOOD—EXAMINATION)

POPOV, Yu.P.

Familial ovalocytosis. Kaz.med.zhur. no.4:71-73 J1-Ag '62.  
(MIRA 15:8)

1. Kafedra propedevtiki vnutrennikh bolezney (zav. - prof. Brening,  
A.I. [deceased] Kazanskogo meditsinskogo instiuta.  
(ERYTHROCYTES)

*Papov, Yu. P.*  
 Distr: HE3d  
 8473 SCL-T-151  
 CROSS SECTION OF THE REACTION  $He^3(n,p)$  FOR THE  
 NEUTRON ENERGIES UP TO 25 K.e.v. (KILO ELECTRON  
 VOLT) AND THE EXCITED  $He^4$  LEVEL. A. A. Reiman,  
 A. I. Isakov, M. F. Ponomarev, and V. I. Shadrin. Translated  
 by M. I. Weisberg from *Fiz. Khim. i Mekh.* of P. M. Lomonosov  
 Academy of Sciences, U. S. S. R. (1961) 10p.

It is seen that, although the magnitude and trend of the  
 $He^3(n,p)$  cross section are satisfactorily described by the  
 presupposition of the presence of an  $n^2$   $He^4$  level, (situated  
 below the bond energy of the neutron) yet the data concerning  
 the existence and properties of such a level are rather con-  
 tradictory. An extrapolation of the state characteristics of  
 $He^4$  from the state characteristics of heavier nuclei would  
 lead one to expect that the first excited level of  $He^4$  ought  
 to have a moment (um) of 1<sup>+</sup> or 2<sup>+</sup>, but not 0<sup>+</sup>. The force  
 of this argument cannot be overestimated, inasmuch as it is  
 not backed up by any quantitative theory. An elucidation of

POPOV, Yu.P., BERGMAN, A.A., ISAKOV, A.I., SHAPIRO, F.L.

"Measurements of the Energy Dependence of the Cross Section for the  $\text{He}^3$  (n.p.);  $\text{Li}^6$  (n. $\alpha$ );  $\text{B}^{10}$  (n. $\alpha$ );  $\text{N}^{14}$  (n.p) Reactions."

(Lebedev Physics Institute, Acad. Sci. USSR)

paper submitted at the All-Union Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 November 1957.

*POPOV, F.I.*  
BERGMAN, A.A., IGAROV, A.I., POPOV, Yu.P., SHAPIRO, F.I.

"Characteristics of a Lead Slow Down Time Spectrometer and Measurement of Cross Sections for the  $(n, \gamma)$  Reaction,"

Lebedev Physical Inst. of Acad. Sci. USSR

paper submitted at the A-U Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 Nov 57.

POPOV, Yu. P. and ISAKOV, A. I.

"Cross Section for the  $\text{He}^3(n,p)$  Reaction for Neutron Energy up to 25 KeV, and Excited State of  $\text{He}^4$ ," a paper submitted at the International Conference on the Neutron Interactions with the Nucleus, New York City, 9-12 Sep 57.

Abstract available in C-3,800,344



10-10-66, 10-10-66

AUTHOR BERGMAN, A.A., ISAKOV, A.I., POPOV, Yu.P., SHAPIRO, F.L. 56-7-2/66

TITLE Measurements with a Slowing-Down-Time Neutron Spectrometer Employing Lead-Excited Level of the He<sup>4</sup> Nucleus.  
(Izmereniya s neytronnym spektrometrom po vremeni zamedleniya v svints. **Vosbuzhdennyy** aroven yadra He<sup>4</sup> - Russian)

PERIODICAL Zhurnal Eksperim i teoret. Fiziki, 1957, Vol 33, Nr 7, pp 9-16 (U.S.S.R.)

ABSTRACT Investigations carried out in connection with neutron reactions with a neutron spectrometer gave the following results:  
 1) Fe(n,γ) Resonance was found at E<sub>R</sub>=1200±100 eV  
 2) Pb(n,γ) Resonance was found at E<sub>R</sub>= 1700±150 eV and 2800±200 eV.  
 3) The cross section course of the reaction B<sup>10</sup>(n,α) deviates by 5-10% from the 1/v course. In B<sup>11</sup> a resonance with E<sub>R</sub>~250 keV, Γ<sub>α</sub>~400 keV, Γ<sub>n</sub>~200 keV, J=5/2+ or 7/2+ was found.  
 4) The deviation of the course of the cross section of the reaction Li<sup>6</sup>(n,α) from the 1/v course is below 5%.  
 5) The deviation of the course of the cross section of the reaction He<sup>3</sup>(n,p) from the 1/v course is considerable, which fact can be explained only by the presence of an excited state in He<sup>4</sup>. The parameters of this level are either J<sup>π</sup>=1+, E<sub>R</sub>~200 keV, Γ<sub>p</sub>~200 keV or J<sup>π</sup>=0+, E<sub>R</sub>~500 keV, Γ<sub>p</sub>~1200 keV. (2 tables, 5 illustrations, 4 Slavic references)

ASSOCIATION Physical Institute "P.N. Lebedev" of the Academy of Sciences of the USSR (Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR)

SUBMITTED 22.1.1957

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Card 1/1

33084  
S/638/61/001/000/006/056  
B102/B138

24.6600  
AUTHORS:

Isakov, A. I., Popov, Yu. P., Shapiro, F. L.

TITLE:

Measurement of the energy dependence of radiative capture of neutrons in the energy range up to 30 kev

SOURCE:

Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 64-72

TEXT: The energy dependence of radiative neutron capture cross sections of Cl, Fe, Ag, and Au was determined spectrometrically from the slowing-down times of the neutrons in lead and preliminary data obtained for Rh, Cu, and Ni. The spectrometer was a 2-m cube in the center of which neutron outbursts from D-T reactions took place 625 times per second, lasting 0.5-2  $\mu$ sec each. At each moment of time  $t$  after the outburst, the neutrons slowed down in lead had a mean energy of  $E = 183/(t + 0.3)^2$  kev;  $t$  in  $\mu$ sec. The root mean square deviate from this value by  $\sim 15\%$  with  $E < 1$  kev and by  $\sim 30\%$  with  $E = 10$  kev. The mean neutron capture cross section at energy  $E$  is given by

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Measurement of the energy ...

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B102/B138

$\sigma(n, \gamma) = k \frac{I_{\gamma}}{I_{Li}} (t) \cdot (t + 0.3)$  where  $I_{\gamma}$  is the counting rate in the analyzer channel and  $I_{Li}$  the counting rate in the detector channel for neutron capture according to the  $1/v$ -law.  $k$  is a scaling factor. Results: Cl. For  $E_0 = 88$  kev no peak was observed. The observed deviation from the  $1/v$ -law at small energies is attributed to a  $Cl^{36}$  level below the neutron bond energy whose energy was found to be  $E_0 = -20 \pm 10$  ev. Brugger et al. obtained  $E_0 = -140 \pm 5$ . From the possible values of the statistical  $g$ -factor the level energies were taken to be 405 ev and 4.3 kev. The latter is attributed to  $Cl^{36}$ . Both seem to be p-levels for which

$E_0$	$\left(\frac{2\pi R}{\lambda}\right)^2$	$\frac{\Gamma_n^0}{\Gamma_n^0(-210 \text{ ev})}$
405 ev	$0.4 \cdot 10^{-3}$	$(0.7-7) \cdot 10^{-3}$
4.3 kev	$5 \cdot 10^{-3}$	$(2.4-20) \cdot 10^{-3}$ , is valid.

Fe and Ni.  $\sigma(n, \gamma)$  of armco iron shows some irregular peaks which are

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Measurement of the energy ...

attributed to Mo, Co, and Mn impurities. The authors were the first to observe the Fe level at  $E_0 = 1180 \pm 80$  ev. If this peak is due to a single level then  $\Gamma_\gamma \gtrsim 0.8$  ev irrespective of the isotope to which the level belongs. The total resonance integral was found to be  $R_\gamma = 1.22 \pm 0.04$  b;  $R_\gamma(1/v) = 1.1 \pm 0.03$  b, the contribution of the 1180-ev level is  $0.1 \pm 0.01$  b and that of the higher levels is 0.02 b. In nickel another resonance at approximately 2 kev was observed besides the known resonance at  $E_0 = 4.2$  kev. A rough estimate of the resonance integral gives  $\sim 0.1$  b, which is not in agreement with the results obtained by other authors. Ag and Au. For  $E \leq 1$  kev the sample thickness (0.2 and 0.6 mm) influences the results, due to blocking effect. The values for Ag differ from those of the neutron atlas (Second Edition BNL-1958). Au. For  $E < 10$  kev they correspond to the tabulated values, for  $E < 10$  kev the values were by 30-40% higher.  $(\Gamma_n^0/D) = (1.2 \pm 0.3) \cdot 10^{-4}$  is close to the value given in the atlas. Rh. The parameters of the levels with  $E_0 = 1.257$  ev and  $E_0 = 46.5$  ev agree with the tabulated values, the other levels were not resolved. Cu. For  $E < 100$  ev,  $\sigma(n,\gamma)$  deviates considerably from the

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Measurement of the energy ...

$1/\nu$ -law. This is attributed to a negative  $\text{Cu}^{64}$  level for which  
 $E_0 \sim 0.2$  kev and  $\Gamma_n^0 \sim 5 \cdot 10^{-2}$  ev are obtained. For the  $E_0 = 0.58$  kev-level,  
 $\Gamma_\gamma = 0.8 \pm 0.1$  ev. There are 10 figures, 2 tables, and 12 references:  
5 Soviet and 7 non-Soviet. The four most recent references to English-  
language publications read as follows: R. M. Brugger et al. Phys. Rev.  
104, 1054, 1957; Hughes D. J., Schwartz R. B. Second Edition B N L-325,  
1958; Hughes D. J., Zimmerman R. L., Chrien R. E. Phys. Rev., Lett. 1,  
461, 1958; Porter, Thomas. Phys. Rev., 104, 483, 1956.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics  
Institute imeni P. N. Lebedev AS USSR)

Card 4/4

VOLKOV, A.N.; KLABUKOV, A.M.; POPOV, Yu.P.

Blanking photoelectric multipliers with microsecond pulses. Prih.  
i tekhn. eksp. no. 2:68-71 Mr-Ap '60. (MIRA 13:7)

1. Fizicheskii institut AN SSSR.  
(Photoelectric multipliers)

ISAKOV, A.I.; POPOV, Yu.P.; SHAPIRO, F.L.

Measuring the energy dependence of the radiative capture of neutrons in iron, silver, and gold in the energy range up to 30 Kev. Zhur.eksp.i teor.fiz. 38 no.3:989-992 Mr '60.

(MIRA 13:7)

1. Fizicheskiy institut imeni P.N.Lebedeva Akademii nauk SSSR.  
(Neutrons--Capture)

KASHUKEYEV, N.T.; POPOV, Yu.P.; SHAPIRO, F.L.

[Measuring the energy dependence of the Cl ( $n, \gamma$ )  
reaction cross section] Izmereniia energeticheskoi za-  
visimosti secheniia reaktsii Cl ( $n, \gamma$ ). Moskva, Glav.  
upr. po ispol'zovaniu atomnoi energii, 1960. 25 p.  
(MIRA 17:1)

(Chlorine isotopes) (Nuclear reactions)



33006  
S/641/61/000/000/033/033  
B102/B138

26.2245

AUTHORS: Kashukeyev, N. T., Popov, Yu.P., Shapiro, F. L.  
TITLE: Measurement of energy dependence of  $Cl(n,\gamma)$  reaction cross sections  
SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 354-363

TEXT: The energy dependence of radiative neutron capture cross sections was measured in the 10ev-20kev range and studied with a spectrometer based on neutron deceleration in lead. For this purpose fast-neutron pulses (625 cps, 0.5-1  $\mu$ sec pulse duration) were generated in the center of a lead cube. The energy was determined from the slowing-down time  $t$  (in  $\mu$ sec) according to  $E = [183/(t+0.3)^2]$  kev. The root-mean-square energy spread was  $\sim 15\%$  at  $E \geq 1$  kev and  $35\%$  at  $E = 10$  kev. The specimen and scintillation gamma detector were placed in a channel in the cube, and the neutron capture gamma ray intensity  $J_\gamma(t)$  was measured in dependence on  $t$ . At the same point the neutron density was also measured with a  $Li^6F$  proportional counter.  $\sigma_\gamma(E)$  was determined from the relation

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Resonance peak

33006  
S/641/61/000/000/033/033  
B102/B138

Measurement of energy dependence...

at  $E_0 = 4.3 \pm 0.5$  kev, at 8.8 kev no peak was observed. The resonance integral in the  $0.49-2 \cdot 10^4$  ev range was found to be  $13.9 \pm 0.7$  barns. For  $E > 2 \cdot 10^4$  ev,  $R_\gamma \sim 0.03$  b. The main contribution to  $R_\gamma$  is due to the negative Cl level, the resonances at 405 ev and 4.3 kev contribute  $0.29 \pm 0.02$  and  $(2.2 \pm 0.7) \cdot 10^{-2}$  b. The contributions of the other spectral ranges were as follows:  $0.49 < E < 250$  ev:  $R_\gamma = 13.5$  b;  $250 < E < 2$  kev:  $R_\gamma = 0.34$  b  $\pm 10$  %;  $E > 2$  kev:  $R_\gamma = 6 \cdot 10^{-2}$  b  $\pm 50$  %. The negative level was found to be at  $E_0 = -210 \pm 10$  ev. Its parameters were:  $g = 5/8$ ,  $\Gamma_n^0 = 1.38 \pm 0.02$  ev,  $\Gamma_\gamma = 0.50 \pm 0.01$  ev,  $\sigma_p = 1.2 \pm 0.2$  b,  $R = (1.0 \pm 0.5) \cdot 10^{-13}$  cm,  $\sigma_\gamma = 33.0$  b (calculated for 0.025 ev energy). The parameters calculated for the Cl<sup>35</sup> resonance levels at 405 ev and 4.3 kev are given in Tables 2 and 3. The authors thank I. M. Frank for interest, Yu. A. Berezina, A. A. Bergman, A. I. Isakov, I. V. Shtranikh and A. M. Klabukov for assistance. There are 6 figures, 3 tables, and

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33006

Measurement of energy dependence...

S/641/61/000/000/033/033  
B102/B138

19 references: 10 Soviet and 9 non-Soviet. The four most recent references to English-language publications read as follows: D. Hughes, R. B. Schwartz. Neutron Cross Sections, BNL-325 (1958); Toller L., Patterson J., Newson H. Phys. Rev., 99, 620 (1955); Brugger R., Evans J., Jokj E., Shankland K. Phys. Rev., 104, 1054 (1957); Endt P., Braams C. Rev. Mod. Phys., 29, 727 (1957).

Table 2.  $\text{Cl}^{35}$  resonance level parameters for  $E_0 = 405 \text{ ev.}$

Table 3.  $\text{Cl}^{35}$  resonance level parameters for  $E_0 = 4.3 \pm 0.5 \text{ kev.}$

Legend: All energies given in ev, all cross sections in barn.

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POPOV, Yu.P.; SHAPIRO, F.L.

$Cl^{35}(n, p)$  reaction and the neutron resonance parameters of chlorine. Zhur. eksp. i teor. fiz. 40 no.6:1610-1614 Je '61.  
(MIRA 14:8)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR.  
(Nuclear magnetic resonance and relaxation)  
(Chlorine—Isotopes)  
(Neutrons—Capture)  
(Nuclear reactions)

POPOV, Yu.P.; FENIN, Yu.I.; SARANTSEVA, V.R., tekhn. red.

[Analysis of averaged cross sections of neutron capture]  
Analiz usrednennykh sechenii zakhvata neitronov. Dubna,  
Ob"edinennyi in-t iadernykh issl., 1962. 14 p.  
(MIRA 15:10)

(Neutrons—Capture)

S/056/62/042/004/011/037  
B163/B102

AUTHORS: Popov, Yu. P., Shapiro, F. L.

TITLE: Energy dependence of the  $(n,\gamma)$ -reaction cross sections of a number of odd-Z nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 4, 1962, 988-1000

TEXT: The radiative neutrons capture cross sections were measured for Br, Rb, Nb, Rh, In, Sb, I, Cs, Ir, and the enriched  $Rb^{85}$  with primary energies below 50 kev. The cross sections were measured with a neutron spectrometer based on the following principle: In a lead cube moderator neutron flashes of 0.5 to 5  $\mu$ sec are generated in the reaction  $H^3(d,n)He^4$ . The decrease of the mean neutron energy  $\bar{E}$  is given by  $\bar{E} = 183/(t + 0.3)^2$  ( $\bar{E}$  in kev, t in  $\mu$ sec). The  $\gamma$  radiation is recorded by a scintillation or proportional gas discharge counter arranged in a channel of the lead cube, alternately with and without the specimen material around the detector.

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44222

S/056/62/043/006/005/067  
B163/B186

26.2245  
AUTHORS: Popov, Yu. P., Fenin, Yu. I.

TITLE: Analysis of average cross sections for neutron capture

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,  
no. 6(12), 1962, 2000 - 2007

TEXT: Experimental data on the energy dependence of average neutron capture cross sections are analyzed, these having been collected in the Fizicheskiy institut im. P. N. Lebedeva (Physics Institute imeni P. N. Lebedev) using a lead slowing down time neutron spectrometer. The analysis is based on equation

$$\bar{\sigma}_v = \sum_{l,j,j'} \bar{\sigma}_v^{l,j,j'} = 2\pi^2 k^2 \sum_{l,j} \frac{2J+1}{2(2I+1)} \sum_l \frac{\Gamma_n^{l,j,j'} \Gamma_\gamma^{l,j,j'}}{D^2 \Gamma^{l,j,j'}} \quad (1)$$

i. e. the Breit-Wigner cross section formula for an isolated resonance, averaged over  $l, J, j$ . In (1),  $\lambda$  is the neutron wave length,  $I$  the spin of the target nucleus and  $J$  that of the compound nucleus,  $j = 1 \pm \frac{1}{2}$  the total momentum of the neutron;  $\Gamma_n^{l,j,j'}$ ,  $\Gamma_\gamma^{l,j,j'}$ , and  $\Gamma^{l,j,j'}$  respectively are the

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Analysis of average ...

partial neutron width corresponding to a given value  $j$ , the radiation and the total widths of the resonance level;  $D^j$  is the average spacing between levels having equal  $J$ . The vinculum in equation (1) denotes averaging over width distributions from resonance to resonance where the Porter-Thomas distribution is used for neutron widths. Inelastic scattering is neglected. The number of unknown parameters in equation (1) is reduced

under the following assumptions. The level density  $\rho = 1/D^j$  and  $\Gamma_n$  are considered to be independent of energy. For the dependence of  $\rho$  and  $\Gamma_n$  on  $J$  the description by the statistical model is used; this means that  $\Gamma_n$  may

be considered practically independent of  $J$ .  $\langle \Gamma_n(1J) \rangle$  is defined by

$\Gamma_n^{1J} = \langle \Gamma_n(1J) \rangle \epsilon_J^{11}$  where  $\epsilon_J^{11}$  is equal to 2 if  $|J - I| \leq 1 + \frac{1}{2} \leq J + I$ , and equal to 1 if only one of the conditions  $|J - I| \leq 1 + \frac{1}{2} \leq J + I$  or

$|J - I| \leq 1 - \frac{1}{2} \leq J + I$  is fulfilled; otherwise  $\epsilon_J^{11} = 0$ .  $\langle \Gamma_n(1)/D \rangle$  is defined by averaging  $\langle \Gamma_n(1J) \rangle / D^j$  over  $J$ . With these definitions, the following

equation results:  $\bar{\sigma}_v = 2\pi^2 k^2 \sum_{l,l'} \frac{2J+1}{2(2I+1)} \frac{e_J^{11} \langle \Gamma_n(l)/D \rangle \langle \Gamma_v(l')/D' \rangle}{e_J^{11} \langle \Gamma_n(l)/D \rangle + \langle \Gamma_v(l')/D' \rangle} F \left( \frac{\Gamma_v(l')/D'}{2e_J^{11} \langle \Gamma_n(l)/D \rangle} \right) \quad (2)$

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Analysis of average ...

where  $F(a) = \left( \frac{\bar{r}_n}{r} \right) \frac{\bar{r}}{\bar{r}_n} = (1 + 2a) \{ 1 - \sqrt{\pi a e^a} [1 - \operatorname{erf}(\sqrt{a})] \}$

$$\operatorname{erf}(\sqrt{a}) = \frac{2}{\sqrt{\pi}} \int_0^{\sqrt{a}} e^{-t^2} dt.$$

The experimental data for Br<sup>79,81</sup>, Rb<sup>85</sup>, Nb<sup>93</sup>, Rh<sup>103</sup>, In<sup>113,115</sup>, Sb<sup>121,123</sup>, J<sup>127</sup>, Cs<sup>133</sup>, Ir<sup>191,193</sup>, Mo<sup>98</sup>, Mo<sup>100</sup>, Ag<sup>107,109</sup> are compared with equation (2), and the strength functions  $S_0$ ,  $S_1$ , and  $(\bar{r}_\gamma/D)_0$ ,  $(\bar{r}_\gamma/D)_1$  for s wave and p wave resonances are varied to give the best fit. A first series of calculations, wherein it was assumed that  $(\bar{r}_\gamma/D)_0 = (\bar{r}_\gamma/D)_1 = S_\gamma$  and in which the strength function  $S_0$  was taken from the results of other authors, served to determine  $S_1$  and  $S_\gamma$ . The second series of calculations served to determine the three parameters  $S_0$ ,  $S_1$ , and  $S_\gamma$ . In the third series,  $S_1$ ,  $(\bar{r}_\gamma/D)_0$ , and  $(\bar{r}_\gamma/D)_1$  were determined for fixed  $S_0$ . The results are given in a table. It is found that in most cases the  $S_1$  values from the three series coincide within the limits of error, even if

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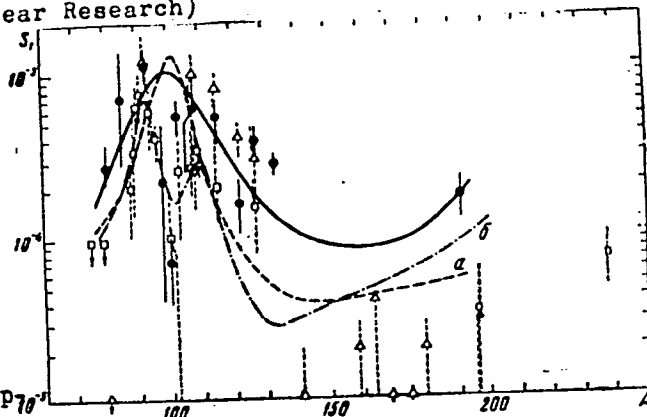
Analysis of average ...

the other parameters vary considerably. In Fig. 3 the p wave strength function is compared with results by other authors. There are 3 figures and 1 table.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: June 20, 1962

Fig. 3: Dependence of the strength function for p wave neutrons on the atomic weight of the target nucleus. ● - Results of the present work. □ - taken from Weston et al., Δ - from Gibbons et al. The solid curve is calculated from the sticking coefficients used by Nemirovskiy (potential with diffuse boundary, volume absorp



Analysis of average ...

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tion). The dotted curves are taken from Krueger and Margolis (potential with diffuse boundary, surface absorption). Curve  $\sigma$  corresponds to twice the spin-orbital interaction as compared with  $\alpha$  and the solid curve. The signs with arrows show upper limits of  $S_1$ .

X

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JG

ACCESSION NR: AP3005219

8/0089/63/015/002/0120/0126

AUTHOR: Kapchigashev, S. P.; Popov, Yu. P.

TITLE: Capture cross sections of neutrons with energies up to 50 kev by certain construction materials

SOURCE: Atomnaya energiya, v. 15, no. 2, 1963, 120-126

TOPIC TAGS: capture cross section, neutron slowing down, nickel, copper, molybdenum, tungsten, neutron spectrometer, resonance, proportional counter, fast neutron, thermal neutron, neutron capture, reactor design, construction material, lead

ABSTRACT: The effective capture cross sections of neutrons with energies up to 50 kev were measured in nickel, copper, molybdenum, and tungsten by means of a neutron spectrometer based on the neutron slowing-down time in lead. The operating principle of the spectrometer and the measuring method have been described previously (Yu. P. Popov and F. L. Shapiro. Zh. eksperim. i teor. fiz., v. 42, 988 (1962); N. T. Kashukeyev, Yu. P. Popov, and F. L. Shapiro. Sb. Neytronnaya fizika. M., Gosatomizdat, 1961, p. 354; Yu. P. Popov and F. L. Shapiro. Zh.

Card 1/43

L 17307-63  
ACCESSION NR: AP3005219

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eksperim. i teor. fiz., v. 40, 1610 (1961)). The dependence of an effective neutron capture cross section on energy for nickel and copper is shown in Fig. 1 of the Enclosure. Nickel specimens were made of various types of metallic nickel and nickel oxide. The results indicate that for nickel at energies from about 1.5 kev to 0.8 ev, the capture cross section dependence is in accordance with the  $1/v$  law. The small peak at  $E \approx 150$  ev is possibly due to the presence of cobalt in the nickel. The deviation of the capture cross section in copper from the  $1/v$  law at  $E > 150$  ev indicates the presence of resonance with negative-level energy in one of the copper isotopes. The energy dependence of the neutron capture cross section in molybdenum was studied for six specimens of various thickness and five different types of metal. The different thicknesses of specimens made it possible to determine the effect of self-shielding and to demonstrate that this effect is absent at  $E > 1$  kev. The use of different types of molybdenum indicated that low peaks on the cross-section curve (Fig. 2 of Enclosure) are due to impurities. For example, the presence of about 0.35% tungsten contributed 1.2 barn to the resonant integral of neutron capture in molybdenum. The capture cross sections in tungsten were measured with five specimens of various thicknesses and three different types of metal. The results

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for tungsten are shown in Fig. 3 of Enclosure. "The authors express their deep appreciation to F. L. Shapiro for continuous attention to the paper and his valuable advice and to Yu. Ya. Stavitskiy for his assistance. The authors also acknowledge V. A. Kopka and S. A. Romanov for their help with the measurements, and Yu. A. Dmitriyenko, S. N. Gubasnov, A. M. Klabukov, and Ye. D. Bulatov for assuring the normal operation of the spectrometer. The authors are also grateful to V. S. Zolotarev and his associates for preparing specimens with separated isotopes." Orig. art. has: 4 figures, 1 table, and 1 formula.

ASSOCIATION: none

SUBMITTED: 23Oct62

DATE ACQ: 06Sep63

ENCL: 03

SUB CODE: NS, PR

NO REF SOV: 014

OTHER: 013

Card 3/63

ACCESSION NR: AP4020337

S/0089/64/016/003/0256/0258

AUTHOR: Kapchigashev, S. P.; Popov, Yu. P.

TITLE: Cross section of capture of neutrons with energy up to 50 kev. by Cr, Cr sup 50, Cr sup 52, Cr sup 53 nuclei

SOURCE: Atomnaya energiya, v. 16, no. 3, 1964, 256-258

TOPIC TAGS: neutron capture cross section, Cr nucleus, Cr sup 50 nucleus, Cr sup 52 nucleus, Cr sup 53 nucleus, chromium isotope, neutron, Cr

ABSTRACT: Curves for the energy dependence of neutron radiation capture cross sections with energies up to 50 kev. are shown by the natural mixture of chromium isotopes and Cr<sup>50</sup>, Cr<sup>52</sup>, Cr<sup>53</sup> isotopes measured in a spectrometer with respect to moderation time of the neutrons in lead. Measurements with specimens of varied thickness of the natural mixture indicate that the effect of self-shielding is absent in the entire energy range. Small quantities of the substance did not permit measurements to be conducted with separated isotopes. However, in comparing the values of a cross section for chromium isotopes with cross sectional values for the natural mixture in a range more likely for the self-shielding

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ACCESSION NR: AP4020337

effect ( $E = 5$  to  $6$  Key.), the specimens are thin. Measurements were also conducted with the  $Cr^{54}$  isotope but due to a very low capture cross section, it is difficult to separate the effect from the background. Therefore, only the upper limit of the resonance integral was carried out. "In conclusion, we are deeply grateful to F. L. Shapiro for his constant attention in the work and to V. S. Zolotarev and his co-workers for having given us the separated chromium isotopes". Orig. art. has: 2 tables, 1 figure.

ASSOCIATION: None

SUBMITTED: 13Aug63

DATE ACQ: 31Mar64

ENCL: 00

SUB CODE: NP

NO REF SOV: 005

OTHER: 007

Card 2/2



ACCESSION NR: AP4012526

S/0056/64/046/001/0080/0088

AUTHORS: Konks, V. A.; Popov, Yu. P.; Shapiro, F. L.

TITLE: Cross sections for radiative capture of neutrons with energies up to 50 keV by La-139, Pr-141, Ta-181, and Au-197

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 80--88

TOPIC TAGS: lanthanum 139, praseodymium 141, tantalum 181, gold 197, radiative neutron capture, neutron capture cross section, resonance capture integral, neutron slowing down spectrometry, neutron time of flight spectrometry, force function

ABSTRACT: Cross section curves for radiative capture of neutrons and data on resonance capture integrals, obtained with a neutron slowing down time spectrometer employing lead, are presented. These data are of interest because of the relative scarcity of information on the force functions for p-neutrons, and because of their interest

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ACCESSION NR: AP4012526

to reactor designers and in connection with recent theoretical papers discussing volume and surface absorption in the optical model and the effect of the deformation of nuclei. The values of the force functions for p neutrons ( $S_1$ ), determined from an analysis of the energy dependences of the capture cross sections, are found to be  $(2.0 \pm 0.9) \times 10^{-4}$ ,  $(1.1^{+1.1}_{-0.6}) \times 10^{-4}$ ,  $\sim 0.2 \times 10^{-4}$  and  $\sim 0.3 \times 10^{-4}$  for La, Pr, Ta, and Au, respectively. Values of  $14.0 \pm 0.9$  and  $17.6 \pm 0.8$  barns were obtained for the resonance absorption integrals of La and Pr, respectively. The data for Ta and Au are still inconclusive. The results are compared with those of others. "In conclusion, the authors are grateful to Yu. A. Dmitrenko, S. N. Gubernov, A. M. Kalbukov, and Ye. D. Bulatov for maintaining proper operation of the equipment, and to Yu. I. Fenin for the computer calculations." Orig. art. has: 5 figures, 2 formulas, and 2 tables.

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ACCESSION NR: AP4012526

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR  
(Physics Institute, AN SSSR)

SUBMITTED: 12Jul63

DATE ACQ: 26Feb64

ENCL: 00"

SUB CODE: PH, NS

NO REF SOV: 011

OTHER: 017

Card 3/3

KVITEK, I.; POPOV, Yu.P.; RYABOV, Yu.V.

Ternary fission of  $U^{235}$  on resonance neutrons. IAd. fiz. 2  
no.4:677-681 0 '65. (MIRA 18:11)

1. Ob'yedinennyy institut yadernykh issledovaniy.

ACCESSION NR: AT4041824

S/2504/64/024/000/0111/0168

AUTHOR: Popov, Yu. P.

TITLE: Investigation of the radiative capture of neutrons with energies up to 50 kev

SOURCE: AN SSSR. Fizicheskiy institut. Trudy\*, v. 24, 1964. Issledovaniya po neytronnoy fizike (Research in neutron physics), 111-168

TOPIC TAGS: neutron, neutron capture, radiative capture, neutron capture cross-section, neutron spectrometer, Gamma ray, scintillation counter, thermal neutron, neutron matter interaction.

ABSTRACT: The object of this dissertation was to study the energy dependence of the cross sections for the radiative capture of neutrons by light and medium nuclei. A critical review of the present methods for measuring radiative neutron capture cross sections is followed by a report of experiments in which the neutron energies were determined from their moderation time in lead ( $E = 183 (\frac{t}{\mu} + 0.3)^2$  kev where  $t$  is in  $\mu$  sec.), and the moment of capture was fixed by the instantaneous  $\gamma$  rays. The neutron energy interval from fractions of an ev up to 50 kev permitted normalization of the measured cross sections for the energy level parameters and energies of several ev, independently of the previously obtained values for the cross section. The measurements were made on:

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a) nuclei with several levels when the spectrometer energy resolution allowed differentiation of the levels, and b) nuclei with atomic weights near 100 (average neutron capture cross section) where the optical model predicted marked resonance in the dependence of  $S_i$  on  $A$ . The  $\gamma$  radiation detectors were: a) proportional counters with argon +  $\text{CO}_2$ , and b) scintillation detectors with  $\text{CaF}_2$  crystals ( $\text{CaF}_2$  is insensitive to neutrons). For protons, a  $\text{CCl}_4$  counter was used. Samples were mixed in the interior of a moderator and since the neutron flux was isotropic, the effective thickness is given by

$$\bar{l}_0 = \frac{4}{S} (V - V_n) = \frac{4V_0}{S}. \quad (1)$$

$$\bar{l}_0 = \frac{2}{R} \frac{R^2 H - r^2 h}{R + H} \quad (2)$$

A zirconium-tritium target served as a neutron source. The effective neutron capture cross section  $\sigma_\gamma$  was calculated according to

$$\sigma_\gamma = k \frac{I_\gamma}{I_0} (t + 0.3), \quad (3)$$

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Normalization of the cross section curves was performed in the region of thermal neutron energies. A discussion is presented of possible errors such as  $\gamma$  background, distortion of the neutron spectrum by the detector and sample materials, dead time of the counters, self screening of the sample, etc. Nuclei of iron, nickel, copper and lead were investigated and the energy dependence of the radiation capture cross sections was graphed. The measured resonance integral of the capture cross section  $R = \int \frac{\sigma_c dE}{E}$  is tabulated and com-

pared with calculated and previously obtained values. For medium and heavy nuclei, the energy resolution of the spectrometer is insufficient to differentiate separate resonances in the energy region higher than a few tens of ev. Therefore, these measurements dealt only with the average cross section. The following elements were investigated: bromine, rubidium, niobium, molybdenum, molybdenum 98, molybdenum 100, rhodium, silver, indium, iodine, cesium, tungsten, iridium and gold. The energy dependence of the radiative neutron cross sections for these elements was also graphed and the values of the resonance integral are tabulated. The dependence of the average cross section for neutrons with energy  $E = 30$  kev on the atomic weight of nuclei with odd  $Z$  was determined, an analysis of the average cross section based on the interaction of  $P$ -neutrons ( $1/0$ ) with nuclei is given, and the capture cross section is calculated according to

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$$\bar{\sigma}_r = 2\pi^2 \lambda^2 \sum_{J'} \frac{2J+1}{2(2I+1)} \frac{e_J^{J'} \langle \Gamma_n(I)/D \rangle \langle \Gamma_r^I/D_J \rangle}{e_J^{J'} \langle \Gamma_n(I)/D \rangle + \Gamma_{-1}^I/D_J} F \left( \frac{\Gamma_r^I/D_J}{2e_J^{J'} \langle \Gamma_n(I)/D \rangle} \right) \quad (4)$$

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The experimental and theoretical values are compared and the average cross sections are analyzed. "In conclusion, the author expresses his gratitude to I. M. Frank for his interest, to F. L. Shapiro for his attention and valuable advice, to A. A. Bergman and A. I. Isakov for helping in the initial stages, to N. T. Kashukeyev, S. P. Kapchigashev, V. A. Konks, Yen I-min, Yu. A. Berezin, V. M. Ivanov, M. Ivanov, Irzhi Kvitek, A. M. Mokrushin, S. A. Romanov and E. Rudak for performing measurements on the individual elements, to Yu. I. Fenin and I. I. Shelontsev for help in analyzing the average capture cross sections, to I. V. Shtranikh, A. M. Klabukov, A. N. Volkov and Ye. D. Bulatov for designing the radiotechnical apparatus, to Yu. A. Dmitrenko, S. N. Gubernov, A. Ye. Samsonov, V. S. Marty\*nov and N. P. Kireyev for guaranteeing normal performance of the apparatus, to I. V. Syutkina and Z. P. Belaya for help in writing the dissertation, to all the workers at the Laboratoriya atomnogo yadra FIAN SSSR (Atomic Nuclear Laboratory of the Physics Institute, AN SSSR) for their cooperation, and to V. S. Zolotarev and his associates for preparing samples of the individual isotopes." Orig. art. has: 29 figures, 6 tables and 47 numbered formulas.

ASSOCIATION: Fizicheskii institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

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KAZARNOVSKIY, M.V.; POPOV, Yu.P.; SADIKOV, I.P.

Research with the aid of pulsed neutrons. Atom. energ. 18 no.4:  
408-410 0 '65. (NIEA 18:11)

L 04225-67 EWT(m)  
ACC NR: AR6031856

SOURCE CODE: UR/0058/66/000/006/V030/V030

AUTHOR: Andreyev, V. N. ; Popov, Yu. P.

TITLE: Slow-neutron induced multiple-particle reaction

SOURCE: Ref. zh. Fizika, Abs. 6V249

REF SOURCE: Byul. Inform. tsentra po yadern. dannym, vyp. 2, 1965, 5-24

TOPIC TAGS: neutron induced reaction, multiple particle reaction, slow neutron

ABSTRACT: This is a review of data on the cross-sections of slow-neutron induced multiple-particle reactions. The region of investigated neutron energies goes from heat energies to tens of kev. [Translation of abstract]

SUB CODE: 18, 20/

C 1/1 *la*

ACC NO: AT0003104

SOURCE CODE: UR/3158/66/000/036/0001/0010

AUTHOR: Kapchigashev, S. P.; Popov, Yu. P.

ORG: none

TITLE: Determination of level densities and the "a" parameter from data on averaged [neutron] capture cross-sections

SOURCE: Obninsk. Fiziko-energeticheskiy institut. Doklady, FEI-36, 1966.  
Opredeleeniye plotnostey urovney i parametra "a" dannykh po usrednennym  
secheniyam zakhvata, 1-10

TOPIC TAGS: neutron capture, Fermi level, level density, neutron, radiation  
capture, radiation neutron capture, radiation width, resonance, nucleon state,  
plasma density

ABSTRACT: Cross-sections of radiation capture of neutrons with energies less than  
50 kev, averaged for several resonances, are analyzed to obtain the parameter  
 $\gamma/a$ . On the basis of radiation widths obtained for the parameter  $\gamma/a$ ,  
measured for different resonances, level densities are computed for nuclei with  
 $51 \leq A \leq 205$ , and values are obtained for the parameter a, which represents the

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L 09875-67

ACC NR: AT6033194

density of single nucleon states near the Fermi level. The results agree with data obtained on low-lying resonances. The general pattern of the relationship  $a(A)$  was found to be in accord with the theoretical curve obtained by Abdel'malik and Stavinskiy. The authors thank F. I. Shapiro for his interest in their work and valuable comments. Orig. art. has: 8 formulas, 1 table, and 1 figure. [Authors' abstract]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 014/

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